

Anticancer Activity of Some Medicinal Plants: A Review

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ABSTRACT

Cancer is a disease in which abnormal cells multiply in the body. It is caused by the uncontrolled multiplication and division of abnormal cells in the body. Currently medicinal plants have become the huge source of discovering drugs for treating diseases including cancer. Medicinal plants with antioxidant and anticancer properties are still in use for treating diseases. Traditional medicine have served many people globally. Chemotherapy produced a number of toxic side effects. Whereas, natural therapies such as the medicinal plants products in the treatment of cancer reduce toxic side effects. This article produce a detailed review of some medicinal plants with anticancer properties to discover a new drug.

KEYWORDS: Anticancer, Cancer, Chemotherapy, Medicinal plants

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INTRODUCTION

Cell growth and proliferation considered as cell division and the process must be controlled very deeply, so that cells, tissues and organs do their work properly. If the cells starts to proliferate, their high-speed and uncontrolled results could be dangerous. A copy of one strand is made and then each one in turn is transmitted to daughter cells that are similar to each other genetically before a cell division process to start during semi conservative replication process on DNA molecules. Cell division involves hundreds of different proteins and some of them inform when cell divided and when did not. Some of them take responsibility for monitoring copying DNA to be done correctly. Most of them are involved in the process of cell division are responsible for pulling the chromosomes towards the poles of the cells were doubled. The damaged cells begin to divide and produce an anomalous mass called a tumour [1].

Cancer spreads to distant organs through blood stream and lymphatic vessels. Cancer results when there is a disturbance in two types of genes namely oncogenes which are responsible for cancer cell growth and tumour suppressor genes which prevents the developing cancer [2].

Cancers are named according to the type of cell, for example, carcinoma is a tumour which arise from the epithelial cell lining, sarcoma if they arise from the epidermal cell lining mean cancer of muscles, bones, cartilage and connective tissue, lymphoma is a tumor arise from cells of immune system, and leukaemia arise from cells of bone marrow. More than six million death each year occur in the world is

due to cancer [3]. In 2018, 18.1 million new cancer cases and 9.6 million deaths were reported. With 36 different types, cancer mainly affects men in the form of colorectal, liver, lung, prostate and stomach cancer and women in the form of breast, cervix, colorectal, lung, thyroid cancer [4].

TYPES OF CANCERS: [5]

1. Cancers of blood and lymphatic systems:

- Hodgkin's disease
- Leukaemia
- Lymphomas
- Multiple myeloma
- Waldenstrom's disease

2. Skin cancers:

- Malignant melanoma

3. Cancers of Digestive Systems:

- Oesophageal cancer
- Stomach cancer
- Pancreatic cancer
- Liver cancer
- Colon & rectal cancer
- Anal cancer

4. Cancers of Urinary system :

- Kidney cancer
- Bladder cancer
- Testis cancer
- Prostate cancer

5. Cancer in women:

- A. Breast cancer
- B. Ovarian cancer
- C. Gynaecological cancer
- D. Choriocarcinoma

6. Miscellaneous cancers:

- A. Brain cancer
- B. Bone cancer
- C. Carcinoid cancer
- D. Nasopharyngeal cancer
- E. Retroperitoneal sarcoma
- F. Soft tissue cancer
- G. Thyroid cancer

HERBAL MEDICINAL PLANTS

Traditional herbal medicine is being practiced throughout the globe in the form of indigenous medicine. The use of medicinal plant resources for the purpose of healing human ailments goes with the evolution of human civilisation and forms the basis of origin of modern medicines [6]. Herbal medicine is used by 75-80% of the world population, mainly in developing countries for primary health care [7]. Moreover, the herbal drugs are believed to have no side-effects, cheap, and locally available [8].

In India 17,000-18,000 species of flowering plants are found of which 6000-7000 are estimated to have medicinal properties. Many Indian cultures has the usage of these medicinal plants and is documented in Indian system of medicine such as Ayurveda, Siddha, Unani and Homeopathy. These medicinal plants also provide livelihood and health security to a large section of Indian population [9].

ADVANTAGES OF HERBAL DRUGS OVER ALLOPATHIC DRUGS

Medicinal plants play a major role in the healthcare systems of large proportions of the world's population. An herb (botanical) is a plant or plant part used for its flavor, scent, or therapeutic properties. Products that are made from botanicals have been used to maintain or improve the health were known as botanicals, herbal supplements or phytomedicines. The herbal medicines have been used in pharmacological treatment of disease that was started long back and they are considered as crude drugs of vegetable origin utilized for disease treatment. It has been estimated that these medicines from plants constitute about 25 percent in modern pharmacopoeia. Common reasons for use of these herbal drugs include disease prevention, health promotion, exhaustion of conventional therapies, limited treatment options for a severe illness, dissatisfaction in conventional therapies, significant side effects associated with conventional medicine, belief that natural and herbal products are better and safer. Whereas side effects of allopathic medications vary widely from mild to severe and there are many. They include insomnia, vomiting, fatigue, dry mouth, diarrhoea, constipation, dizziness, suicidal thoughts, hostility, depression, mania, seizures, coma, anaemia, hair loss, high blood sugar, shoplifting, swelling, impotency, panic attacks, confusion, fainting and death. It is often difficult for seniors to keep track of multiple medications which further increase likelihood of side effects due to allopathic medicines [10]. Nowadays, most part of the plant parts are used as herbal medicine for treating extreme, severe and constant sicknesses. These herbal medicines are most affordable than conventional medicine and plays a major role in natural healing, strengthens the immune system and stabilizes the hormonal metabolism effectively.

Table 1: List of some medicinal plants with anticancer properties

S. No.	PLANT NAME	FAMILY	PART OF PLANT USED	REFERENCE
1.	Aloe vera	Asphodelaceae	Whole plant	[11]
2.	Annona squamosa	Annonaceae	Flower	[12]
3.	Aristolochia longa	Aristolochiaceae	Roots	[13]
4.	Aristolochia ringens	Aristolochiaceae	Roots	[14]
5.	Averrhoa bilimbi	Oxalidaceae	Fruit, leaves	[15]
6.	Azadirachta indica	Meliaceae	Leaves, seeds	[16]
7.	Barleria grandiflora	Acanthaceae	Leaves	[17]
8.	Cenchrus ciliaris	Poaceae	Aerial parts, roots	[18]
9.	Centaurea nerimaniae	Asteraceae	Aerial parts	[19]
10.	Corchorus dichotoma	Boraginaceae	Leaves	[20]
11.	Cocculus hirsutus	Menispermaceae	Aerial parts	[21]
12.	Curcuma longa	Zingiberaceae	Rhizome	[22]
13.	Dillenia pentagyna	Dilleniaceae	Stem bark	[23]
14.	Ficus racemosa	Moraceae	Fruit	[24]
15.	Ficus beecheyana	Moraceae	Roots	[25]
16.	Hibiscus deflersii	Malvaceae	Aerial parts	[26]
17.	Morus nigra	Moraceae	Leaves	[27]
18.	Ocimum sanctum	Lamiaceae	Leaves	[28]
19.	Piper longum	Piperaceae	Fruit	[29]
20.	Plectranthus stocksii	Lamiaceae	Leaves, stem	[30]
21.	Salvia pinardi	Labiatae	Aerial parts	[31]
22.	Syzygium cumini	Myrtaceae	Seeds	[32]
23.	Tacoma stans	Bignoniaceae	Leaves, flower	[33]
24.	Vitis vinifera	Vitaceae	Liquid sap of stem	[34]
25.	Zea mays	Poaceae	Leaves	[35]

CONCLUSION

Since the dawn of human civilization, medicinal plants have been considered to be the best source of curing various dreaded diseases and cancer is one among those disease. There are lot of medicinal plants available in nature which has the anticancer properties and majority of them are still to be explored. Anticancer agents derived from the plant source have largely contributed to the development of new drugs. This short review provided the information about few medicinal plants that possess anticancer activity. The herbal medicinal plants and its derivatives are active against different types of cancers. The usage of herbal drugs throughout the globe and especially in India is ubiquitous.

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